TAMPERE UNIVERSITY OF TECHNOLOGY

Social media's opportunities in business-to-business customer interaction in innovation process

Jari J. Jussila*

Tampere University of Technology
Korkeakoulunkatu 8
F1-33101, Tampere, Finland
E-mail: jari.j.jussila@tut.fi

Hannu Kärkkäinen

Tampere University of Technology
Korkeakoulunkatu 8
F1-33101, Tampere, Finland
E-mail: hannu.karkkainen@tut.fi

Maija Leino

Tampere University of Technology
Korkeakoulunkatu 8
F1-33101, Tampere, Finland
E-mail: maija.leino@tut.fi

Abstract: In the paradigm of open innovation it is recognized that valuable innovation-related knowledge is being increasingly widely distributed to various actors, organizations and communities. Social media can provide novel and useful ways of interacting and collaborating in innovation, likewise for creating new information and knowledge about customers for innovations. These have not so far been much investigated because of the novelty of social media concepts and approaches. Furthermore, the opportunities of social media are not yet well understood in the contexts of innovation and customer interaction, and importantly, while the business-to-consumer sector standpoint has been more researched and understood, the business-to-business sector standpoint has been very little studied in the above contexts. With the help of a literature review and a survey in Finnish companies, we studied the current situation regarding the opportunities of social media in facilitating customer interaction in the innovation process.

Keywords: Social Media; Business-to-Business; Customer Interaction; Customer Understanding; Innovation; Innovation Process; Open Innovation; Customer Knowledge Management; Co-creation

1   Introduction

One of the most frequently recognized and crucial drivers of success in innovation and new product development is a good, in-depth understanding of customer and market needs (e.g. Barclay 1992; Rothwell et al. 1974; Cooper 1993; Hart et al. 1999). Successful inter-organizational and intra-organizational cooperation is a further major success factor in innovation (Read 2000; Muffatto & Panizzolo 1996). In the increasingly important paradigm of open innovation, it is recognized that valuable innovation-related knowledge is being distributed ever more widely to various actors, organizations (such as users, customers and partners) and communities (Chesbrough 2003). Various types of collaborative web tools and approaches, such as social media, can enable and significantly increase the use of the distributed knowledge both within and outside the company borders, and also facilitate the related customer interaction.

Social media can provide novel and useful ways of interacting and collaborating in innovation, an also for creating new information and knowledge about customers for

innovations (Barker 2008; Bernoff & Li 2008; Cachia et al. 2007). This has not so far been much investigated because of the novelty of social media concepts and approaches. Furthermore, the opportunities of social media in the contexts of innovation and customer interaction are only little understood, and importantly, according to our exhaustive literature review, while the business-to-consumer sector standpoint is much better researched and understood, the business-to-business sector standpoint has been very little studied in the above contexts.

Concerning the use of social media in customer interaction, there are studies that consider individual social media-related approaches, such as wikis, blogs, virtual worlds (e.g. Kohler et al. 2009) or customer communities, in customer interaction and the creation of understanding about customer needs. A clear majority of these are case studies. There are also studies considering the marketing aspect and marketing opportunities of social media in customer interaction, but the majority were found to concentrate decidedly on the one-sided company-to-customer aspect of marketing, instead of more interaction-related approaches. However, no studies were found on the opportunities of social media at large in customer interaction, and especially not from the innovation perspective. More specifically, no academically reported empirical survey studies were found in this area. Furthermore, according to several studies, it has been a rather common assumption in B2B-companies that social media is something belonging almost solely to business-to-consumer sector, and that it has little to offer for B2B-companies (Isokangas & Kankkunen 2011; Lehtimäki et al. 2009; Eskelinen 2009). There is especially a lack of research on how social media is used by B2B companies, (Michaelidou et al. 2011).

Previous research has established the importance of understanding customers' needs in innovation, and while various social media approaches have been identified useful in innovation, research on how B2B organizations use social media in innovation remains limited. This study addresses the gap by focusing on social media opportunities in B2B companies' innovation.

Due to the significant novelty of social media research in B2B customer interface, and the very fragmented and non-organized picture of the current use and opportunities of social media in this area, the purpose of this study is to develop insight and deeper understanding of the application opportunities and the role of social media in understanding B2B customers' needs. Because of the current lack of the larger picture of the role and opportunities of social media in B2B sector, this study is partly exploratory and partly descriptive, aiming to screen and organize the knowledge and understanding of this currently little known territory. The aim of this research is to explore and map the current various ways of using social media, as well as the perceived opportunities of social media in facilitating customer interaction in the innovation process. First, we want to understand how B2B companies have currently applied social media approaches in customer interaction in the innovation process. Second, we want to understand how large opportunities social media is perceived to provide in involving customers in innovation, and in facilitating different forms of customer interaction. We aim to answer the above research questions by using both current literature on social media and an empirical survey. Literature is utilized in two ways: first, to gain an understanding of the state-of-the-art of current social media in B2B innovation and customer interaction contexts, to verify the research gap and to design the empirical survey. The survey was conducted in Finnish companies with more than 50 employees to study perceived social media opportunities and use in the above mentioned context. Second, it was used as a way to collect and organize data by screening existing various types of cases, examples and approaches of social media use in B2B innovation and customer interaction contexts.

In this study, we summarise and analyse, in an organized way not provided in earlier literature, various types of applications and opportunities the social media approaches currently provide for Business-to-Business customer interaction and for understanding customer needs in the different phases of the innovation process. In addition to giving examples of social media tools in different forms of customer interaction, the related novel opportunities offered by social media are analysed and discussed in more detail.

2 Social media in business-to-business innovation

2.1 Definition of social media

To define the central concept of this study, social media, we start by clarifying a related concept, Web 2.0, which is often used synonymously, despite conceptual differences. Web 2.0 refers to technologies that enable users to communicate, create content and share it with each other via communities, social networks and virtual worlds, making collaboration easier than before. These technologies also make it easier to have real life experiences in virtual worlds and to organize content on the internet with content aggregators. (Lehtimäki et al. 2009) Such tools and technologies emphasize the power of users to select, filter, publish and edit information (Tredinnick 2006), as well as to participate in the creation of content in social media. According to (Constantinides & Fountain 2008), "Web 2.0 is a collection of open-source, interactive and user-controlled online applications expanding the experiences, knowledge and market power of the users as participants in business and social processes. Web 2.0 applications support the creation of informal users' networks facilitating the flow of ideas and knowledge by allowing the efficient generation, dissemination, sharing and editing / refining of informational content."

Social media can be defined as "a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of user generated content" (Kaplan & Haenlein 2010). Further to this, social media are often referred to as applications that are either fully based on user-created content, or in which user-created content or user activity play a significant role in increasing the value of the application or the service. (Lietsala & Sirkkunen 2008) suggest using social media as an umbrella term under which various and very different types of cultural practices take place related to the online content and people who are involved with that content. They continue by defining social media being built on the combination of Web 2.0 technologies, content and communities, this definition emphasizing the social aspects, instead of Web 2.0 technologies that may or may not be used in an interactive and social manner.

A large number of generic types of social media–related applications can be identified (e.g. Warr 2008; Cooke & Buckley 2008; Dewing 2010), such as wikis (e.g. Wikipedia), blogs (e.g. company newsrooms), microblogs (e.g. Twitter, Yammer), social networking sites (e.g. LinkedIn, Facebook), social content communities (e.g. YouTube, Flickr, Digg), intermediaries (e.g. InnoCentive), mash-ups, prediction markets, and virtual social worlds (e.g. Second Life). Some of the practices are already relatively well established in private and business use, such as participating in wikis, blogging, and social networking, and some are still developing, such as microblogging, or using add-ons to build new types of hybrid sites, etc.

Academically, however, little is currently known specifically about the opportunities of social media in the B2B context, which, for several reasons explained below, is a very different environment, especially concerning the objective of understanding business-to-business customers, users and their needs, comparing it to the already relatively well understood business-to-consumer standpoint.

2.2 Requirements and challenges for social media use in the business-to-business sector

Markets, products and product development differ significantly between the business-to-business and consumer product sectors (e.g. Kotler 1996; Von Hippel 1988; Webster 1995; Holt et al. 1984; Urban & Hauser 1993; Hanna et al. 1995). For instance, generally speaking products produced by business-to-business organizations are more complex, the development of new products takes significantly more time, and the customers are large organizations instead of individuals, which is the case in the consumer (business-to-consumer) product sector. In industrial business-to-business markets, there are normally fewer customers than in consumer markets, and the co-operation with customers is generally more direct and more intense than in the consumer sector. Industrial products are usually purchased by professional purchasing people who consider a large number of different criteria when making the buying decisions. They tend to acquire ample information about the industrial products to be purchased, and they normally evaluate the different alternatives objectively. The demand for industrial products is derived from the demand for the company's industrial customers' products and finally the end-user demand (Kotler 1996; Webster 1995). In industrial products there is more emphasis on physical performance and personal selling than in consumer products, where psychological attributes and advertising are critical for success (Urban & Hauser 1993).

Concerning the topic of this study, it is significant that in general, customer information and knowledge are more complex in business-to-business markets than in consumer markets, for instance, because it comes from many levels and from numerous sources inside and outside of a company (Rollins et al. 2011). It is also highly relevant that according to recent research, information utilization differs significantly between the two aforementioned markets: marketing research suggests that customer and market information utilization in business-to-business markets is inherently different from that in consumer markets (e.g. Srinivasan & Lilien 1999; Latusek 2010); cf. (Rollins et al. 2011).

Compared to the generally reported use of social media, or their use in the B2C sector there are certain restrictions that may affect or restrict the usability and usefulness of social media in the specific B2B context. As a consequence, this, too, may lead to different usage patterns and different applicability of social media in the B2B sector than in other environments. First, since the number of customers is generally much smaller in the B2B sector, the use of crowdsourcing (outsourcing certain tasks normally performed by a company's employees to an undefined - and generally large - network of people in the form of an open call, either carried out by individuals or collaboratively (Howe 2011), which is quite commonly used in B2C operations, is limited. Second, in the context of innovations and the B2B sector, legal contracts and IPR issues can become challenges in the free disclosure of product or business ideas in inter-organizational innovation collaboration (e.g. Nordlund et al. 2008), and may thus seriously limit the usability of social media between B2B companies and their customers. Third, various issues concerning information security have been raised already in individuals' use of social media, but due to the nature of business-to-business communication, the business-to-business context includes severe information security risks potentially limiting the use of social media in ways that are not necessarily similarly problematic in B2C social media applications: for instance, while most employees may be aware that it is not a good idea to respond unthinkingly to emails, such forethought is

not necessarily applied to social media sites. This means that staff may unintentionally disclose sensitive corporate information without thinking (for instance concerning future product launches or violating customer confidentiality agreements), or disclose information that can be combined with data gleaned from elsewhere to build up a useful corporate picture, not realising that it is stored online indefinitely and is searchable. (Everett 2010; Langheinrich & Karjoth 2010)

Taking the above differences into consideration, it is fair to assume that the various types of innovation-related managerial approaches, e.g. collaborative approaches and customer needs assessment activities, such as those carried out by means of social media , should also take these differences carefully into account when planning and implementing approaches for the business-to-business sector companies.

2.3 Customers' role in innovation process phases

A number of authors have found it useful to divide the innovation process into three parts, especially regarding the viewpoint of innovation process-related customer interaction. According to (Nambisan 2002) the phases are as follows: ideation, design and development, and product testing and support phase; see also (Fuller & Matzler 2007; Desouza et al. 2008).

In the strategic management literature and quality management literature five roles have been identified for customers in value creation: resource, co-producer, buyer, user and product (Finch 1999; Gersuny & Rosengren 1973; Kaulio 1998; Lengnick-Hall 1996). Of these roles three (resource, co-producer, user) are most relevant for the innovation process and its main phases (Nambisan 2002). Because our aim is to understand the role of customers and B2B customer interactions in the creation of customer understanding, the division of the innovation process accordingly seems relevant, making it possible to analyse the roles and opportunities of social media in a useful and sufficiently detailed way. In the first phase, customers can be regarded mainly as a resource, i.e. for ideas, in the second phase customers can be regarded as co-creators (or co-producers), and in the final phase customers can be regarded as (end)users (Nambisan 2002); also (Chan & Lee 2004; Fuller & Matzler 2007; Bartl et al. 2010).

2.4 Customer interaction forms in B2B innovation

In both the B2C and B2B sectors, the role of customers and/or users as a source of innovation has grown rapidly (e.g. Von Hippel 2005; Von Hippel & Katz 2002; Piller & Walcher 2006). Moreover, customer involvement in the co-creation of value has gained strongly in importance (e.g. Bartl et al. 2010; Sawhney et al. 2005). Novel modes of interaction have also emerged with internet-based collaboration and social media (Sawhney et al. 2005; Piller & Walcher 2006). Business-to-business companies have been slowly adopting such new ways, for instance in marketing related activities (e.g. Gillin & Schwartzman 2011) but in many potential areas of application the new interaction and related knowledge creation possibilities are not yet widely well known and well understood.

Even though customer involvement and interaction are important in both B2C and B2B sectors, there are many factors which make the interaction and emphases different in several ways. Excessive generalization should also be avoided, because the interaction is obviously dependent, for instance, on the industries in question. However, certain key

emphases affecting the interaction can be found (Gillin & Schwartzman 2011; Bernoff & Li 2008; Kho 2008; Salz 2009):

- fewer customers and closer customer relationships in B2B

- interconnected buyers in B2B

- longer-term customer relationships in B2B

- gatekeeper persons between customers and B2B

The above topics mean, first of all, that since the above issues have to be taken into consideration, customer interactions often take very different shapes in B2B than in B2C. Second, these topics create both opportunities and challenges for B2B customer interaction. Third, social media has been already seen to offer totally new opportunities in avoiding some of these challenges (e.g. overcoming gatekeeper persons in B2B) and strengthening the existing and creating even quite novel interaction forms concerning the opportunities (e.g. Gillin & Schwartzman 2011; Bernoff & Li 2008).

In addition to the above topics, the customer interaction forms in B2B are heavily dependent on the phases of the innovation process (e.g. Hemetsberger & Godula 2007; Desouza et al. 2008). Customer roles vary in different innovation phases, and so also in the related forms of interaction. The main roles of customers are as a resource, as co-creators and users (Nambisan 2002; Fuller & Matzler 2007). Concerning the new opportunities of social media in facilitating the interaction in the above roles, the customer's role as co-creator is likely a particularly interesting issue with novel yet not fully researched possibilities. Concerning the creation of customer knowledge as the result of the supported interaction, according to (Nambisan 2002) and (Sawhney & Prandelli 2000) new (internet-based) technologies enable "a shift from a perspective of merely exploiting customer knowledge by the firm to a perspective of knowledge co-creation with the customers". Due to the above, it can be argued that the related forms of customer interaction - as well as the roles of social media enabling these interactions - should be taken into consideration and studied specifically in the context of at least the different major phases of the innovation process (see e.g. (Sawhney et al. 2005).

It is possible to categorise the major customer interaction forms in various ways. We have listed firstly the most common major interaction forms used in social media - supported customer communication and interaction. Secondly, we have added an option for "no direct interaction", because first, B2B customer information and knowledge can be shared and created internally, e.g. by wiki-based tools and communities, and second, various analysis tools can be utilized for creating customer information and knowledge from social media supported communities even without direct interaction with customers. These include for example data mining and social network analyses. Thirdly, we have also taken into consideration the more novel e.g. community-related interaction opportunities afforded by social media and other forms of internet-based novel applications. One interesting novel interaction form added is User Toolkits for Innovation, such as configurators and design tools (von Hippel 2001; Von Hippel & Katz 2002; Piller & Walcher 2006). We have included this type of interaction because User Toolkits have been used in the context of communities, as well as social media, and they allow customers to design or co-design mass-customized, tailored or even totally new concepts themselves, as well as enabling manufacturers to actually abandon attempts to

understand user needs in detail in favour of transferring needs-related aspects of product and service development to users (von Hippel 2001; Piller & Walcher 2006), we have ended up by categorising the interaction forms as follows:

- **No direct interaction** (see above)
- **One-way interaction** (we define this as *mainly* one-way interaction, even though occasional feedback may be received)
    - One-way; company to customers (passing on product or service marketing related information to customers)
    - One-way; customers to company (collecting customer information to support product development)
- **Two-way interaction** (interaction is essentially company's and customers' reciprocal interaction with little or no interaction between customers)
- **Community-interaction** (we define this as a company using or participating in reciprocal interaction in various types of customer communities, where important feature is interaction between customers)
- **User toolkit - supported interaction** (user toolkits are an essential part of co-creation and allow new ways for customers as well as the company or companies to interact with each other)

3 Research approach

First, a systematic literature review was conducted a) to increase our understanding on the current state-of-the-art of B2B social media research especially in the customer interface of innovation process (outlined in sections 1 and 2), and b) to increase understanding on the various ways, examples and cases by which B2B companies have currently applied social media in customer interaction in the innovation process. Second, a survey was conducted to increase the understanding on the perceived opportunities and the current use of social media in facilitating customer interaction in the innovation process.

3.1 Literature review

The following search term combinations: business-to-business and social media / Web 2.0, B2B and social media / Web 2.0, customer interaction and social media / Web 2.0, customer understanding and social media / Web 2.0, customer knowledge and social media / Web 2.0, co-creation and social media / Web 2.0, and customer knowledge management were used to search articles from Scirus, ABI, Emerald, ScienceDirect and EBSCO databases. A total of 928 of articles were found. In addition, we made searches concerning individual social media tools, such as wikis, blogs, Twitter, LinkedIn, etc. in the specific context of B2B and the customer interface, using various combinations of search terms and the above research databases. We searched and discovered some additional references by searching forward and backward referencing of the most relevant discovered articles. Authoritative blogs and books were used as additional sources to

supplement the literature review to include more business-to-business examples that were relatively rare in the existing academic literature.

3.2 Survey

At the beginning of the questionnaire the respondents were given a brief definition of social media: "By social media we mean applications which are based either fully on user-created content, or user-created content and user activities have a significant role in increasing the value of the application or service. Social media is built on Web 2.0 technologies, content and communities."

We clarified the emphasis of business, the alternatives being business-to-consumer, business-to-business, and other markets, by asking which alternative would best describe the respondent companies' main focus.

Social media generic opportunities were evaluated by asking the respondents to rate how much opportunity does social media provide in increasing customer orientation, in involving customers in innovation and service development on a five-point scale ranging from very little to very much. Social media use was evaluated by asking the respondents how much social media was used in collaboration with customers. Furthermore, we studied the perceived opportunities of social media in customer interaction by asking the respondents to evaluate the opportunities of social media in different types of customer interaction modes on a five-point scale ranging from very little to very much.

3.2.1 Sample

The sample consisted of 1984 Finnish decision-makers in companies with more than 50 employees. The contact information was selected on individuals working in companies employing more than 50 employees in either research and development or product design capacities. The respondents were selected on the basis of their position in relation to product development and innovation. Invitations to participate in the survey including a covering letter explaining the focus of the survey were sent to the addresses obtained with two weeks time to complete the survey. After two weeks an email reminder was sent offering one week more to complete the survey. To improve the response rate telephone calls were made to contacts whose titles included product and manager, developer or designer in title, a total of 262 individuals were contacted of whom 132 (50%) were reached in two weeks.

A total of 122 responses to the Internet-based survey were received. The effective response rate was thus 6% (122/1984). Of the responding firms, 78% were concerned with manufacturing, 8% construction, information and communication and wholesale and retail trade both 2%, 1% with mining and quarrying, professional, scientific and technical activities, and human health and social work activities, 7% were industries classified as "other". The majority (76%) of the respondents were oriented towards business-to-business markets and a minority (26%) towards business to consumer markets. The responses concerning the respondent's positions within the firm were product development (67%), management (16%), IT (5%), HR and sales (2%), marketing (1%), 8% were in positions classified as "other".

To ensure the representativeness of the sample, the authors acquired general statistics on Finnish companies with more than 50 employees. These statistics were obtained through Statistics Finland (www.stat.fi). The authors compared the number of personnel

and annual revenue between the sample and the figures provided by Statistics Finland. The annual revenue and number of personnel from the sample seemed to accurately represent the general figures from the Finnish companies. Pearson's Chi-Square testing was performed on the data, which rejected the null hypothesis of independence on both occasions at α<0.001, giving further evidence that the results from the sample could be generalized to Finnish companies.

4 Results

4.1 Literature review results

We present the condensed main results of the literature study in Table 1. Table describes the different examples identified of the current use of social media in the customer interface of B2B companies. We categorised the examples according to the different forms of customer interaction already introduced, as well as the phase of the innovation process. In all cases, the categorisation, however, was not entirely straight-forward, because the cases or examples identified did not report the usage patterns and tasks in full detail. On the basis of the table, we were able to find examples of use in almost all the table subcategories. Some categories, however, proved to be more challenging: despite various user toolkits and community user toolkits (see e.g. Ahonen et al. 2007) being used in B2C companies with and without the direct support of social media, we were able to find little evidence of their use in B2B community / social media-related contexts. One potentially interesting B2C example was commercial third-party-enabled MyDeco community for house decoration, which integrated the use of configurator and design toolkits, various companies and consumers collaborating and participating in the community, as well as social media support for community stakeholder interaction.

Considering solely the number of different social media use examples, application areas with a relatively wide array of different examples, especially the after-launch phases had significantly more case examples than the other phases. About half of the case examples were reported in academic journals.

Table 1 Examples of social media use in B2B companies' customer interaction in innovation process.

|	Ideation (idea generation) phase	Concept and Development phase	Product Testing and Support phase
1. No direct interaction	Detecting weak signals from Second Life data and from observing changes in search behaviour (Cachia et al., 2007), Social bookmarking tools in discovering weak signals of future needs (Näkki & Antikainen, 2008)	Using Twitter in marketing research – to read what customers have to say (Kaplan & Haenlein, 2011)	Using social networking profiles and their links to other groups to scope out customers interests (Gillin & Schwartzman, 2011), use of web analytics to see what keywords users are searching (Thomas & Barlow, 2011)

2. One-way interaction	Sharing and discussing about industry trends with customers (e.g. IBM PartnerWorld Community)	Keeping customers informed of upcoming product features and products (e.g. NI Labs)	Automating sales proposals using mashups (Ogrinz, 2009), using LinkedIn to get past gatekeepers, (Gillin & Schwartzman, 2011), sales promotions in Twitter (Kaplan & Haenlein, 2011)
3. One-way interaction	Customers can vote for conference themes (Barker, 2008), tags and tag clouds can be used in discovering weak signals and trends (Cachia et al., 2007), customers can express their ideas online (Prandelli et al. 2006)	Blogs can provide customer need information for product development (Singh et al., 2008)	Using mashups to push customer enhancement requests from customer service to product managers (Ogrinz, 2009), using blogs to get feedback and to understand customers' perceptions of new product features (Singh et al., 2008)
4. Two-way interaction	Using professional customers as "credible private focus groups" in LinkedIn (Gillin & Schwartzman, 2011)	Design of items in virtual collaborative spaces (Ondrejka, 2005), using virtual prototypes to choose best of several new concepts (Dahan & Srinivasan, 2000)	Answering product questions and troubleshooting technology challenges and in Twitter (Thomas & Barlow, 2011), listening to customers and fixing customer problems (Kaplan & Haenlein, 2011)
5. Community-interaction	Using wikis to share ideas (inside and outside of organization) , also enabling asynchronous distributed brainstorming (Standing & Kiniti, 2011), idea competitions to screen for ideas and solutions from communities (Haller et al. 2011)	Online test laboratory for discussing about feedback from prototypes, blog based tool where users may suggest needs and development ideas for new products and services, also the rating and commenting of ideas by other users (Näkki & Antikainen, 2008)	Enabling public customer complaints (Warr, 2008), YouTube channel where customers can upload videos explaining how solutions have helped their business, providing links to product tweets on website, thus allowing prospects to see what other customers are saying (Marketo, 2010)
6. User toolkit –supported interaction	Users can apply toolkits to design products and services to fit their own needs (von Hippel and Katz, 2002), e.g., MyDeco provides home design configurators that bridge consumers, designers and home decoration companies, enabling them e.g. to discover market trends and weak signals (mydeco.com)	User toolkits for innovation, e.g. software design tools for customers to perform design (von Hippel, 2001), user design through web interfaces that enable customers to select interactively the features they prefer in their ideal product (Dahan & Hauser, 2002)	MyDeco uses configurator and design tools, combined with social media and communities that are used by consumers in household room design and decoration. This provides customer understanding for architects, designers and manufacturers. (mydeco.com)

4.2 Survey results

According to the results on the Finnish B2B sector presented in Figure 1, there was a wide gap between the perceived generic opportunities afforded by social media use with customers and the use of social media in collaboration with customers: of the B2B companies studied, almost half (48.9%) perceived important opportunities (rather much or very much) for social media to increase customer orientation, 16.6% stated that social media could offer important opportunities (rather much or very much) in involving customers in innovation, and slightly more (21.1%) reported that social media can offer important opportunities (rather much or very much) in involving customers in service

development. However, only 5.6% actually reported making significant use of social media in collaboration with their customers (rather much or very much).

Figure 1 Social media use with customers vs. perceived generic opportunities.
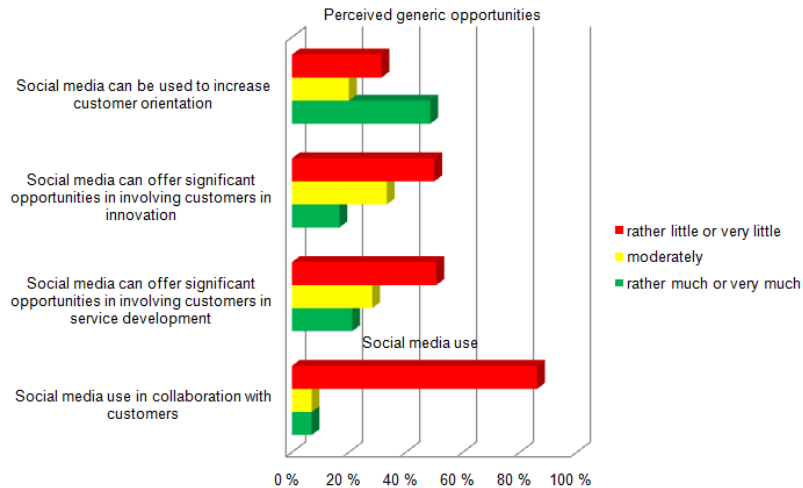
According to results seen in Figure 2, the B2B companies studied perceived significant opportunities most frequently (rather much or very much) in the one-way forms of customer interaction: passing on product or service marketing-related information to customers, and collecting customer information (almost a third of respondents). Concerning the other more interactive forms of customer interaction, the frequency of the companies studied perceiving (rather much or very much) opportunities in social media decreased somewhat in every further interaction mode that required more intense customer involvement in product or service development. The pattern was similar in this respect for B2C companies, although B2C companies recognized more opportunities in every mode of customer interaction: in addition, to gain an overall picture of the B2B vs. B2C companies, we calculated the average of rather much and very much responses in all interaction categories from B2B and B2C companies (shown in the Figure 2). This shows that, on the average, B2C companies perceived considerably more opportunities in all the customer interaction forms studied.

Figure 2 Perceived opportunities of social media in different types of customer interaction in innovation in B2C and B2B sectors.
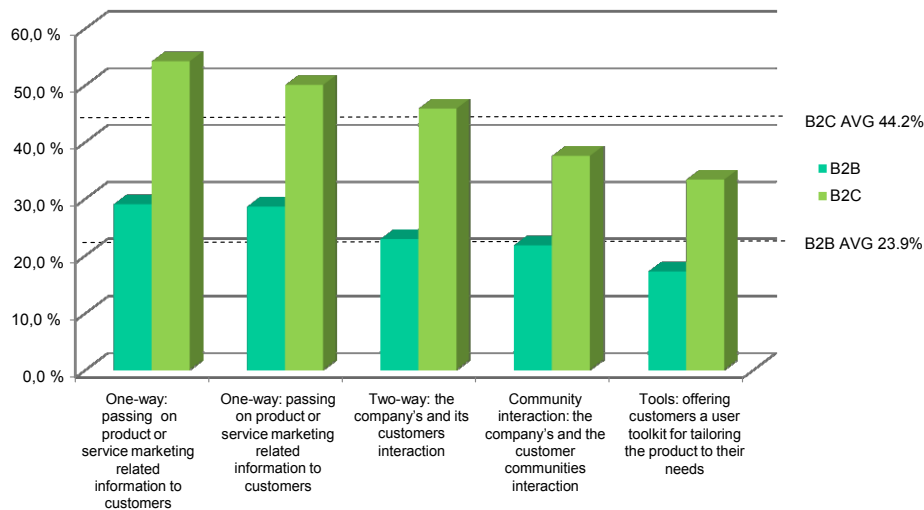
5 Conclusions

According to our literature review, academic B2B-oriented research in general is very rare. Even if the use and applications of social media in B2C and B2B companies do have some commonalities, and excessive generalizations should be avoided because of the heterogeneity of the B2B sector, we have demonstrated in our study that concerning the above, the B2B environment does indeed differ significantly from the B2C environment in several ways, especially regarding the contexts of innovation management, customer interaction and creation of customer knowledge and understanding. In addition to the managerial viewpoint, this difference should be considered in future research: more especially B2B-oriented empirical and theoretical research should be carried out to gain more insight into the more extensive usability of social media in various B2B industries and contexts. The above context-dependability was not the focus of this study, but needs to be further studied due to the heterogeneity of the B2B sector.

The results of our literature review presented in Table 1 summarized and organized the larger picture of what kind of applications and opportunities the social media approaches currently provide for Business-to-Business customer interaction and understanding customer needs in the different phases of the innovation process. The review of the Table 1 shows, first of all, that despite the often expressed doubts about the applicability of social media in B2B operations (see Introduction), social media has been already utilized in a wide variety of ways and purposes in the B2B sector, even if the general adoption rate is still quite low as regards the topics of this study. In light of the results, social media truly seem to offer very novel and innovative ways to intensify B2B-related customer interaction, for the sharing of customer-related information, as well as for the resulting new customer information and knowledge. Many uses of social media in the B2B sector are different and unique compared to the traditional approaches in B2C operations (e.g. dedicated LinkedIn groups). We also found an interesting example of a

commercial third-party-enabled MyDeco community for house decoration, integrating the use of configurator and design toolkits with community and social media. MyDeco is interesting in the sense that it can be viewed both from consumer community perspective and B2B community perspective, and it usefully integrates both angles. We found no earlier B2B- related communities reported in academic literature that integrate social media- supported communities with customer configurator and design toolkit characteristics in the manner of well-known B2C examples of Lego and Threadless.com communities. Lego and Threadless.com approaches cannot be easily adapted in the B2B sector. Contrary to this, MyDeco offers an example which could also be used as a useful model for B2B community building purposes and for new ways of B2B customer interaction.

Interestingly, concerning the experienced opportunities of social media in different types of customer interaction forms in the B2B respondents of our survey, the experienced highest opportunities (much or very much potential) were found in one-way customer interaction (both company to customer and customer to company). Fewer opportunities were seen in the more social and collaborative types of interaction forms, which are considered characteristically to be the core of social media. This may indicate for instance that a) in the B2B environment, the less interactive solutions really do offer more opportunities for B2B companies in general than the more social and interactive ones b) it is more difficult for companies to appreciate the real opportunities of social media in the more novel and the more interactive collaboration forms. This is an avenue we will explore in greater detail in future research.

In our earlier study, we found that the major reasons for B2B companies not to use social media in innovation, despite the perceived extensive opportunities, were a) failure to comprehend the opportunities of social media in innovation, b) the difficulties of assessing the financial gains from social media, c) the difficulties in adopting new mental models and practices needed for adoption, and d) the lack of evidence from similar cases using social media in innovation. Managerially, our results especially concerning the various types of B2B- related social media approaches can be used to help to overcome most of the above barriers, especially a), d) and into some extent, also c). The results help to gain a better understanding of how social media can be used in innovation-related B2B customer interaction and how social media can facilitate and provide novel ways for the acquisition of customer needs–related information and knowledge. The results can be used to enhance managers' mental models of the usefulness and applicability of social media in B2B innovation and the creation of customer understanding, instead of maintaining in seeing social media narrowly as Facebook and Twitter, as is often the case in practice. In light of the above, the examples described can also help companies to more easily experiment with and adopt social media.

Furthermore, given the low current B2B adoption of social media seen in the results of this study and of our earlier survey, and the wide variety of useful opportunities, the companies that first experiment with and develop social media-based ways to support B2B customer interaction might benefit greatly from these investments. In addition, consultants might benefit from these results by taking advantage of the B2B companies' examples of social media approaches described.

Even though B2B companies could also use and benefit from consumer or end-user related communities in increasing their understanding of their customers and their needs, we did not study this option in this paper, but focused on the companies' and their

business customers' interaction and the related customer understanding. This issue could be studied in further research.

References

Ahonen, M., Antikainen, M. & Mäkipää, M., 2007. Supporting collective creativity within open innovation. In *European Academy of Management (EURAM) Conference Paris*. European Academy of Management. p. 18.

Barclay, I., 1992. The new product development process: past evidence and future practical application, Part 1. *R&D Management*, 22(3), pp.255–264.

Barker, P., 2008. How social media is transforming employee communications at Sun Microsystems. *Global Business and Organizational Excellence*, 27(4), pp.6–14.

Bartl, M., Jawecki, G. & Wiegandt, P., 2010. Co-Creation in New Product Development: Conceptual Framework and Application in the Automotive Industry. In *Conference Proceedings R&D Management Conference–Information, Imagination and Intelligence, Manchester*.

Bernoff, J. & Li, C., 2008. Harnessing the power of the oh-so-social web. *MIT Sloan Management Review*, 49(3), p.36.

Cachia, R., Compano, R. & Dacosta, O., 2007. Grasping the potential of online social networks for foresight☆. *Technological Forecasting and Social Change*, 74(8), pp.1179-1203.

Chan, T.Y. & Lee, J.F., 2004. A comparative study of online user communities involvement in product innovation and development. In *13th International Conference on Management of Technology IAMOT, Washington DC, April*. p. 29.

Chesbrough, H.W., 2003. *Open innovation: the new imperative for creating and profiting from technology*, Harvard Business Press.

Constantinides, E. & Fountain, S.J., 2008. Web 2.0: Conceptual foundations and marketing issues. *Journal of Direct, Data and Digital Marketing Practice*, 9(3), pp.231–244.

Cooke, M. & Buckley, N., 2008. Web 2.0, social networks and the future of market research. *International Journal of Market Research*, 50(2), p.27.

Cooper, R.G., 1993. *Winning at new products: accelerating the process from idea to launch*, Addison-Wesley.

Desouza, K.C. et al., 2008. Customer-driven innovation. *Research-Technology Management*, 51(3), pp.35–44.

Dewing, M., 2010. Social Media 1. An Introduction. , (3), p.9.

Eskelinen, M., 2009. Sosiaalinen media business to business-markkinoinnissa.

Everett, C., 2010. Social media: opportunity or risk? *Computer Fraud & Security*, 2010(6), pp.8–10.

Finch, B.J., 1999. Internet discussions as a source for consumer product customer involvement and quality information: an exploratory study. *Journal of Operations Management*, 17(5), pp.535–556.

Fuller, J. & Matzler, K., 2007. Virtual product experience and customer participation–A chance for customer-centred, really new products. *Technovation*, 27(6-7), pp.378–387.

Gersuny, C. & Rosengren, W.I., 1973. *The service society*, Cambridge, Massachusetts: Schenkman Pub. Co.

Gillin, P. & Schwartzman, E., 2011. *Social Marketing to the Business Customer: Listen to Your B2B Market, Generate Major Account Leads, and Build Client Relationships*, Wiley.

Hanna, N. et al., 1995. New product development practices in consumer versus business products

organizations. *Journal of Product & Brand Management*, 4(1), pp.33–55.

Hart, S., Tzokas, N. & Saren, M., 1999. The effectiveness of market information in enhancing new product success rates. *European Journal of Innovation Management*, 2(1), pp.20–35.

Hemetsberger, A. & Godula, G., 2007. Integrating expert customers in new product development in industrial business: Virtual routes to success. *Innovative Marketing*, 3(3), pp.28–39.

von Hippel, E., 2001. Innovation by user communities: learning from open-source software. *MIT Sloan Management Review*, 42(4), p.5.

Von Hippel, E., 2005. *Democratizing innovation*, The MIT Press.

Von Hippel, E., 1988. *The sources of innovation*, New York: Oxford University Press New York.

Von Hippel, E. & Katz, R., 2002. Shifting innovation to users via toolkits. *Management science*, 48(7), pp.821–833.

Holt, K., Geschka, H. & Peterlongo, G., 1984. *Need assessment: a key to user-oriented product innovation*, Wiley, Chichester [Sussex]; New York.

Howe, J., 2011. The Rise of Crowdsourcing. *Crowdsourcing*. Available at: http://www.crowdsourcing.com/.

Isokangas, A. & Kankkunen, P., 2011. *Suora yhteys – näin sosiaalinen media muuttaa yritykset*, Finnish Business and Policy Forum EVA. Available at: http://www.eva.fi/julkaisut/eva-raportti-suora-yhteys-n%C3%A4in-sosiaalinen-media-muuttaa-yritykset/3572/ [Accessed May 6, 2011].

Kaplan, A.M. & Haenlein, M., 2010. Users of the world, unite! The challenges and opportunities of Social Media. *Business Horizons*, 53(1), pp.59–68.

Kaulio, M.A., 1998. Customer, consumer and user involvement in product development: A framework and a review of selected methods. *Total Quality Management & Business Excellence*, 9(1), pp.141–149.

Kho, N.D., 2008. B2B gets social media. *EContent*, 31(3), pp.26–30.

Kohler, T., Matzler, K. & F\üller, J., 2009. Avatar-based innovation: Using virtual worlds for real-world innovation. *Technovation*, 29(6-7), pp.395–407.

Kotler, P., 1996. *Marketing management : analysis, planning, implementation and control* 9th ed., Englewood CLiffs, N.J. :: Prentice Hall ; Available at: http://www.decitre.fr/pdf/feuilletage/9782744073458.pdf.

Langheinrich, M. & Karjoth, G., 2010. Social networking and the risk to companies and institutions. *Information Security Technical Report*, (15), pp.51-56.

Latusek, W.P., 2010. B2B relationship marketing analytical support with GBC modeling. *Journal of Business & Industrial Marketing*, 25(3), pp.209–219.

Lehtimäki, T. et al., 2009. Harnessing web 2.0 for business to business marketing-Literature review and an empirical perspective from Finland. *Faculty of Economics and Business Administration*, (29), p.76.

Lengnick-Hall, C.A., 1996. Customer contributions to quality: a different view of the customer-oriented firm. *The Academy of Management Review*, 21(3), pp.791–824.

Lietsala, K. & Sirkkunen, E., 2008. *Social Media: Introduction to the Tools and Processes of Participatory Economy* 1st ed., Tampere, Finland: University of Tampere. Available at: https://files.pbworks.com/download/oAMA8heevw/socialmediaclub/17044189/social%20media%20intro.pdf [Accessed May 26, 2011].

Michaelidou, N., Siamagka, N.T. & Christodoulides, G., 2011. Usage, barriers and measurement of social media marketing: An exploratory investigation of small and medium B2B brands. *Industrial Marketing Management*.

Muffatto, M. & Panizzolo, R., 1996. Innovation and product development strategies in the Italian motorcycle industry. *Journal of Product Innovation Management*, 13(4), pp.348–361.

Nambisan, S., 2002. Designing virtual customer environments for new product development: Toward a theory. *The Academy of Management review*, 27(3), pp.392–413.

Nordlund, H., Lempiälä, T. & Holopainen, M., 2008. Openness of innovation and new roles of customers and users in business-to-business context.

Piller, F.T. & Walcher, D., 2006. Toolkits for idea competitions: a novel method to integrate users in new product development. *r&D management*, 36(3), pp.307–318.

Read, A., 2000. Determinants of successful organisational innovation: a review of current research. *Journal of Management*, 3(1), pp.95–119.

Rollins, M., Bellenger, D.N. & Johnston, W.J., 2011. Customer information utilization in business-to-business markets: Muddling through process? *Journal of Business Research*, p.7.

Rothwell, R. et al., 1974. SAPPHO updated-project SAPPHO phase II. *Research policy*, 3(3), pp.258–291.

Salz, P., 2009. Talkin´ ´bout a (B2B) Revolution. *EC blog*. Available at: http://www.econtentmag.com/Articles/Column/Agile-Minds/Talkin-bout-a-%28B2B%29-Revolution-56126.htm.

Sawhney, M. & Prandelli, E., 2000. Managing Distributed Innovation in Turbulent Markets. *California Management Review*, 42(4), p.31.

Sawhney, M., Verona, G. & Prandelli, E., 2005. Collaborating to create: The Internet as a platform for customer engagement in product innovation. *Journal of Interactive Marketing*, 19(4), pp.4–17.

Srinivasan, R. & Lilien, G., 1999. Leveraging Customer Information for Competitive Advantage. *ISBM Report*, 17, p.42.

Tredinnick, L., 2006. Web 2.0 and business. *Business Information Review*, 23(4), pp.228-234.

Urban, G.L. & Hauser, J.R., 1993. *Design and Marketing Of New Products* 2nd ed., Prentice Hall.

Warr, W.A., 2008. Social software: fun and games, or business tools? *Journal of Information Science*, 34(4), p.14.

Webster, F.E., 1995. *Industrial marketing strategy*, John Wiley & Sons Inc.